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ABSTRACT

The theme of this bibliography on urban services is that planning has entered a distinct new phase. It is distinguished primarily by the unusual role that technically acquired information is assuming in the political process. Another characteristic of the new phase is the tendency to rely upon the most advanced knowledge of human behavior for decision making at all levels of government. Technical decisions are resolved more and more frequently by general techniques rather than by experience. The change is irreversible because the answers from the new technology can be implacable and can stand independently of private motive. From the enormous literature of the social sciences that postulate and evaluate theories of behavior, microeconomic theory has emerged as the most widely used theoretical framework to examine the behavior of individuals and organizations. The readings in this bibliography present a sample of some advanced information available in two areas: (1) the adoption of new policies and methods by policy making organizations, and (2) sources of fundamental information from the social sciences and applications of that information to the planning of urban services. Most, but not all, entries in this bibliography are annotated. (Author/AM)

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# PLANNING URBAN SERVICES: A BIBLIOGRAPHY ON NEW DIRECTIONS

Philip A. Armstrong

April 1976

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# I. INTRODUCTION

The theme of this bibliography on urban services is that planning has entered a distinct new phase. It is distinguished primarily by the unusual role that technically acquired information is beginning to assume in political processes. Another characteristic of the new planning is the tendency to use the most advanced knowledge of human behavior for decisionmaking at all levels of government. The transition to this phase of planning is not a manifestation of the advancement of scientific knowledge but a reduction in the distance between governmental practitioners and remote academic researchers. It is surprising because the flow of scientific information has been growing. This Paper does not seek to verify the foregoing conjecture. Instead, it is elaborated below as a rationale to motivate the selections of literature following it which are concerned with the second aspect of the so-called new planning: use of advanced information from the social sciences and concern with second-order, behavioral consequences of public action.

The planning of urban services has entered a phase of comprehensiveness and sophistication. Technical decisions at the municipal level of government are resolved more and more frequently by general techniques rather than local experience. A political calculus once determined the optimal number and location of fire stations and sewage treatment plants in New York City. That calculus has now changed irreversibly by the admission of operations research to the list of accepted factors for evaluating and deciding such locational problems. The chief distinction of this kind of analysis compared to more traditional engineering studies is that the political impact of the solution is not obvious even after having made the assumptions necessary to formulate the technical problem. The size of phenomenon modeled and the breadth of information used to simulate future outcomes are qualitatively larger than in previous stages of technical planning. The new approaches therefore can produce answers that are beyond intuition. It is not an unintelligible counterintuitive power they provide but acceptable, comprehensible answers from ultra-intuitive methods.

The inability of individuals to solve such problems weighs against comprehending and accepting the new solutions. This is more than counterbalanced by the use of theories that are consensually validated by wide audiences and large data bases comprising individually familiar and comprehensible bits of information. The individual usually cannot intuit the answer from the problem and the data. However, the individual has as a reassuring substitute knowledge that the constituents of the technique (data and theory) are orthodox to a very wide audience.*

The breadth and complexity of problems addressed in ongoing planning efforts identify the new phase. The change is irreversible because the answers from the new technology can be implacable and can stand without private motive. The results from major modeling efforts increasingly bear a unique political weight: their owners tend to believe them, and argument about their validity is foreclosed by the complexity and latent legitimacy of the technique. When serious challenges are made, they often focus on assumptions that can be readily tested within the technique. Technique is not setting policy alone or even close to a role as the major determinant of policy. It is, however, serving effectively to eliminate decisions grossly deviant from the rationally optimal.

Another dimension of the new planning is the interest in implementation of technical solutions and the introduction of technical methods to governmental bodies making decisions. Both interests reflect a concern for the reactions of individuals and organizations to imminent change. The body of knowledge on introducing technique to decision-making entities also reflects a solid belief in the social utility of method on the part of policy analysts in and out of the academy. This provides some evidence that the role of new techniques is emerging rapidly and irreversibly. In contrast to the large models of urban activities developed in the last decade which have become less frequently contemplated, this may be a phase of planning not likely to ebb.

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*The discussion concerns possibilities for applying technique. This is about what technology can be or do at the present limit, not what the average situation is.

Fundamental knowledge from the academic developers of the social sciences is being used more and more at all levels of governmental decisionmaking. Economics integrates human behavior and technical possibilities in predicting the impact of toll rates at entry points to Manhattan on traffic in the central business district, concentration levels of air pollutants, and use rates of retail enterprises like department stores and legitimate theater. Psychology is being used particularly in the development of implementation strategies. Strong aversion to risk motivates individuals to pay much more than the expected value of insurance against catastrophic losses. This conditions new proposals for health, casualty and liability insurance. Sociological analyses predict the locational consequences of differential preferences between blacks and whites for neighborhood attributes. A recent political study of the dynamics underlying the passage of legislation submitted by New York City to the New York State legislature examines over a thousand separate bills quantitatively in an impressive theoretical format. That presents a powerful tool to the City that may extend its capabilities for dealing with the State to the ultra-intuitive level.

The readings below present a sample of some advanced information available for the new planning in two of the areas described above: (1) adoption of new policies and methods in policymaking organizations, and (2) sources of fundamental information from the social sciences and applications to the planning of urban services.

## II. HOW TO LOOK AT PLANNING PROBLEMS

Levine, Robert A. *The Arms Debate*. (Cambridge, Mass.: Harvard University Press, 1963), Chapter 2.

This chapter is called "The Logical Structure of a Policy Position." It is a lucid description of an approach to formulating and debating policy problems. Drawing on some of the language of decision theory, but not the formalisms, it is an excellent description of the uses of fact, value, and logic. It assumes no formal training in economics, probability or other discipline.

## III. TAKING ANALYSIS TO THE PROBLEM

### A. Systems Analysis

Smith, Bruce L. *The Rand Corporation*. (Cambridge, Mass.: Harvard University Press, 1966). Chapter on project to locate air bases for the Strategic Air Command, U.S. Air Force.

The study on location of SAC bases for the U.S. Air Force is an example of effective systems analysis. A wide range of problems were attacked, solved and integrated into overall strategy and specific recommendations. Much care went into communicating the results from the analyst (Rand) to many parts of the client (Air Force). The problem specified by the client was enlarged by the analyst to admit the client's values and organizational behavior into the analytical calculus.

### B. Benefit-Cost Analysis That Works

U.S. Department of Health Education and Welfare, Office of Assistant Secretary for Program Coordination. *Application of Benefit-Cost to Motor Vehicles*. (Washington, D.C.: August 1966).

This study directed by William Gorham demonstrates that economic tools can be applied to policy problems with some degree of sophistication

(i.e., technical correctness) and yield robust, useful insights. Computing benefit-cost *ratios* for different strategies to reduce costs of accidents was appropriate because of the error in data and arbitrariness of assumptions. The results were ratios that differed by orders of magnitude; evidence that proved compelling before the Congress.

C. Balancing Analytical Rigor Against Effect on the Organization

Schultze, Charles L. *The Politics and Economics of Public Spending.* (Washington, D.C.: The Brookings Institution, 1968).

After the germ of benefit-cost analysis had struck Washington, potent antibodies developed. A more subtle approach to evaluating programs and managing the large bureaus administered by the executive was developed in the program planning and budgeting system (PPBS). Prescribing a framework for accounting benefits and costs, PPBS allocated responsibility for the counting to the bureaus and told them what to present and when to provide it. This strategy is appealing because of its prescriptive simplicity, accommodation to the market of political resources, and congruence with the schedule of executive and legislative operations. Its apparent failure in government may have been due to the shortness of implementation (about 3 effective years under Johnson) or to the methodological latitude allowed in preparing analyses. Schultze examines this scene in governance and places it nicely in the 20th century. Whether or not PPBS was implemented successfully, management of the federal government is less arbitrary now for having tried to justify its activities by this procedure.

D. Balancing Analytical Rigor Against Unmeasurable Dimensions of Public Welfare

Lichfield, Nathaniel. "Cost-Benefit Analysis in Town Planning: A Case Study: Swanley." *Urban Studies* III (November 1966), pp. 215-249.

The need to act on public policy, improve social welfare and husband public resources motivated Lichfield to incorporate important, unmeasurable variables into benefit-cost analyses. His method has the virtues of completeness and explicitness. It sacrifices analytical rigor to attain them. However, decisions are always made, and they

reflect assessments of immeasurables made implicitly or otherwise. Like PPBS, this is an attempt to overcome inherent limitations of measurement and definition that hound applications of the theory of rational choice.

E. How the Analyst Brings Rigor to the Organization

Archibald, K. A. "Three Views of the Expert's Role in Policymaking: Systems Analysis, Incrementalism, and the Clinical Approach." *Policy Sciences* I (Spring 1970), pp. 73-86.

Armstrong, Philip A. *Power and Expertise: A Note on Archibald's View of the Analyst*, P-5657, forthcoming. (The Rand Corporation, Santa Monica, California, May 1976.)

Archibald identified three roles that analysts assume in relation to clients. They illustrate different ways to bring the rigor of good analysis to client organizations. Armstrong interpreted them as instrumental devices to surmount different conditions of influence between analyst and client and between the client and his problem. Concern with the role of the analyst shows awareness of the client as middleman between new technical knowledge (from analysis) and a preexisting environment (the problem and associated constituencies and markets).

## IV. FUNDAMENTAL THEORIES OF BEHAVIOR

From the enormous literature of the social sciences that postulate and evaluate theories of behavior, microeconomic theory has emerged as the most widely used theoretical framework to examine the behavior of individuals and organizations. Some organizational and political theories have drawn analogies from economics, and one is cited below. Personality theories are diverse and little convergence among them toward a unified theory seems evident.

For the purposes of analyzing and organizing urban services, the items cited below will serve as references on some primary theories of behavior and selected applications of theory to explain observed activities.

A. Personality Theories

Blanck, Gertrude and Rubin Blanck. *Ego Psychology: Theory and Practice.* (New York: Columbia University Press, 1974).

The first section of this book concisely describes the theory of orthodox, neo-Freudian psychology.

Skinner, B. F. *Technology of Teaching.* (New York: Appleton-Century-Crofts, 1968).

Skinner has developed an entirely different theory of behavior. The simplicity of its fundamental axiom and application to empirical problems match those of economics.

Hampden-Turner, Charles. *Radical Man: The Process of Psycho-Social Development.* (Cambridge, Mass.: Schenkman Publishing Co., 1970).

Another major branch of personality theory, pioneered by Maslow and others, is humanist psychology. Hampden-Turner develops an elaboration of Maslow's theory and verifies it in an unusual but empirical manner.

Varela, Jacobo A. *Psychological Solutions to Social Problems: An Introduction to Social Technology.* (New York: Academic Press, 1971).

This book surveys an extremely wide psychological and behavioral literature, describes theories and attempts to integrate them by showing that different theories often predict (successfully) the same behavior in observed situations. Further, it serves as an applications manual for the organizational analyst. Truly in the clinical mode, it is in that sense apolitical.

B. Rational Choice Theory

Henderson, J. M., and Quandt, R. E. *Microeconomic Theory: A Mathematical Approach.* 2nd Ed. (New York: McGraw-Hill, 1971).

Friedman, Milton. *Price Theory: A Provisional Text.* Revised edition (Chicago: Aldine, 1962).

These two texts provide the fundamentals of microeconomics in a rigorous, concise form.

Singer, Neil M. *Public Microeconomics*. (New York: Little Brown & Co., 1972).

Singer demonstrates applications of microeconomics to the provision of public services. This is an important collection of current practice among economic policy analysts, particularly in the federal government.

Ward, Benjamin. *What's Wrong with Economics?* (New York: Basic Books, 1972).

Ward uses the reasoning Kuhn developed for interpreting the progress of natural science to examine the (self-imposed) constraints of economics.

Kaldor, Nicholas. "The Irrelevance of Equilibrium Economics." *The Economic Journal*. LXXXII (December 1972), pp. 1237-1255.

Kaldor attacks the development of general equilibrium theory on several grounds. Presumed constant returns to scale and an absence of empirical grounding of the axioms of equilibrium theory are the most important among them. While Ward provides the analyst with a wary, critical disposition, Kaldor criticizes one aspect of modern economics in a specific, detailed manner (with acid wit). Kaldor provides an example for the analyst contemplating application of economic reasoning.

Bardach, Eugene. *The Skill Factor in Politics: Repealing the Mental Commitment Laws in California*. (Berkeley, California: University of California Press, 1972).

Bardach develops a theory of political weights and resources analogous to a market theory. He develops it from a case study of the California legislature. It exemplifies the nexus between the practical planning and advanced scientific knowledge.

Niskanen, William A., Jr. *Bureaucracy and Representative Government.* (Chicago: Aldine-Atherton, 1971).

Niskanen developed a theory of bureaucracies to explain their puzzling behavior. In a sense he was filling a Kuhnian gap. His predecessors, Parkinson and Tullock, separately formulated the axiom concerning bureaucracies' tendency to oversupply. The theory generates testable hypotheses concerning the behavior of bureaus. However, Niskanen leaps without warning from the positive to the normative.

Breton, Albert, and Wintrobe, Ronald. "The Equilibrium Size of a Budget-Maximizing Bureau: A Note on Niskanen's Theory of Bureaucracy." *Journal of Political Economy* LXXXIII (February 1975), pp. 195-207.

Refinement of Niskanen. Kuhn was right!

## V. THE SUPPLY OF URBAN SERVICES

### A. Economic Approaches to Analyzing the Supply of Services

Dajani, Jarir S. "Cost Studies of Urban Public Services." *Land Economics* XLIX (November 1973), pp. 479-83.

Dajani introduces the question of associating cost of supply with inputs and technology. This survey critiques the field. Studies are numerous, validation limited.

Thompson, W. R. *A Preface to Urban Economics.* (Washington, D.C.: Resources for the Future, 1965).

The "inductive-statistical" approach to estimating cost functions (p. 259) and the "qualities" of scale (p. 95) are defined and discussed.

DeSalvo, J. S. and P. Lave, *A Statistical-Engineering Approach to Estimating Railway Cost Functions*, P-3781 (The Rand Corporation, Santa Monica, California, March 1968).

The "engineering-data" approach to estimating cost functions is developed. It is one alternative to the inductive-statistical method characterized in Thompson.

Hirsch, Werner Z. *The Economics of State and Local Government.* (New York: McGraw-Hill, 1970).

Hirsch summarizes the current knowledge and estimating techniques associated with providing public services.

B. Reviews of the Literature

Two lengthy and exhaustive reviews of policy-research literature on urban services are forthcoming from Rand.

Vernez, Georges. *Delivery of Urban Public Services: Production Costs, Demand Functions and Determinants of Public Expenditures for Fire, Police and Sanitation Services.* P-5659, forthcoming. (Santa Monica, California, The Rand Corporation, 1976).

Swersey, Arthur, et al. *Fire Protection and Local Government: An Evaluation of Policy-Related Research.* R-1813-NSF, forthcoming. (Santa Monica, California, The Rand Corporation, 1976).

## VI. DEMAND FOR URBAN SERVICES

The literature is limited and not marked with great unanimity. Tiebout's hypothesis is still in debate. The political and economic machinery that determines the level of supply is activated ultimately by demands of those who benefit, consumers and suppliers. At present the attention of researchers on the demand for services is limited, but that is clearly an area of investigation of urban services that might yield the greatest advancement in knowledge and service efficiency.

## VII. BROADER PERSPECTIVES

James, Charles S. *Police and Fire Integration in the Small City.* (Chicago, Ill.: Public Administration Service, 1955).

Cunningham, Walter M. *Coalescence of the Municipal Police and Fire Services: A Comparison of Experience in the United States, Canada, and Great Britain.* Ph.d. dissertation (Claremont, Ca.: Claremont Graduate School, 1968). 2 Vols. available from University Microfilms, order no. 71-13681.

More, Harry W., Jr. *The New Era of Public Safety* (Springfield, Ill., Charles C. Thomas, 1970).

These authors examined traditional fire departments and came to opposite views on the virtues of consolidating police and fire departments. James, using logic without data, and More, using the opinions of police officials, argue for merging police and fire departments into joint public-safety departments. Cunningham examined the British experience with national police-fire consolidation and found it unsuccessful. These items represent a small but important area of research on urban services that does not take organization or technology of production as fixed.

## VIII. VALUES AND MEANING

Rein, Martin. *Social Policy: Issues of Choice and Change.* (New York: Random House, 1970), Chapters 12, 13, 21.

Churchman, C. West. *Prediction and Optimal Decision; Philosophical Issues of a Science of Values.* (Englewood Cliffs, N.J.: Prentice-Hall, 1961, Chapters 14-16.

Etzioni, Amitai, and Lehman, Edward W. "Some Dangers in Valid Social Measurement," in *Social Intelligence for America's Future; Explorations in Societal Problems*, Bertram M. Gross, editor (Boston: Allyn and Bacon, 1969).

These essays describe the problems encountered in formulating social policy. No particular solutions are offered to solve problems of immeasurability, incommensurability and value conflicts within the public. However, the analyst and policymaker might develop a deeper understanding of the problems associated with the production and distribution of services by studying their logical structure. It might help one avoid pitfalls.